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THE MORTALITY OF THE WORKMEN'S SICK AND DEATH BENEFIT FUND OF AMERICA.

BY EDWARD H. KONIGER.

The name of the Workmen's Sick and Death Benefit Fund indicates its object: the payment of sick and death benefits. The death benefits amount to one uniform payment of \$250. The sick benefits amount to from \$6.00 to \$9.00 a week for 80 weeks. The admission to membership is subject to a satisfactory medical examination. Assessments are payable monthly.

Sometime ago I had occasion to investigate the mortality conditions of this association. It has been in existence since 1885; but the records of the first four years being incomplete, the investigation was started with the year 1889. From 1889 to 1909, 48,990 men and 8,166 women were members of the association; 39,255 membership certificates were still in force on the policy anniversaries in 1909; 14,156 certificates had lapsed for non-payment of the assessments; 3,745 members had died. The total risks aggregated 419,123 policy years, making an average duration of 7 years 4 months for each certificate.

Some of the principal results of the mortality investigation are shown in the following table:

TABLE A.

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
Age attained.	Mortality per Thousand during first 5 years of Insurance. Men and Women.	Mortality per Thousand after first 5 years of Insurance. Men and Women.	Aggregate Mortality per thousand Men.	Aggregate Mortality per thousand Women.	Aggregate Mortality per thousand Men and Women.	Graduated aggregate Mortality per thousand Men and Women.	Number Living.	Number Dying.	Complete expectation of life.	Age attained.
18	4.070	.....	4.630	2.358	4.070	.....	.....	.....	.....	18
19	2.971	.....	3.132	2.413	2.971	.....	.....	.....	.....	19
20	4.561	.....	5.042	2.735	4.561	3.591	100,000	359	42.6	20
21	4.693	.....	5.041	2.795	4.693	4.113	99,641	410	41.8	21
22	4.524	.....	4.622	3.200	4.054	4.270	99,231	424	40.9	22
23	6.074	.....	5.892	4.054	4.524	4.165	98,807	411	40.1	23
24	3.382	4.310	3.960	6.250	5.944	4.000	98,396	394	39.3	24
25	4.284	6.135	4.284	2.765	3.770	4.000	98,002	391	38.4	25
26	3.553	4.013	3.161	6.258	4.550	3.988	97,611	386	37.6	26
27	3.738	5.648	3.885	5.121	3.625	4.060	97,215	423	36.7	27
28	4.768	6.655	5.214	4.676	4.069	4.349	96,792	455	35.9	28
29	5.155	5.160	5.312	4.323	5.156	4.703	96,337	486	35.1	29
30	4.942	5.245	4.996	5.131	5.017	5.047	95,851	520	34.2	30
31	4.315	5.503	4.519	5.270	4.639	5.430	95,331	542	33.4	31
32	5.941	5.573	5.565	7.203	5.830	5.933	94,789	562	32.6	32
33	6.391	5.944	6.310	5.887	6.242	6.171	94,227	581	31.8	33
34	5.905	8.296	6.855	6.310	6.766	6.460	93,646	605	31.0	34
35	6.449	8.021	7.133	6.696	7.061	6.816	93,041	634	30.2	35
36	6.502	7.017	7.276	6.320	7.118	7.258	92,407	671	29.4	36
37	7.017	9.336	8.372	6.306	8.031	7.726	91,027	709	28.6	37
38	7.611	9.097	8.594	6.757	8.290	8.143	90,286	741	27.9	38
39	6.998	9.071	8.062	7.596	7.984	8.541	89,515	771	27.1	39
40	7.342	9.119	8.285	7.842	8.212	8.837	88,724	791	26.3	40
41	8.433	9.798	9.056	9.581	9.142	9.075	87,919	805	25.5	41
42	8.302	10.579	9.727	8.640	9.548	9.401	87,092	827	24.8	42
43	9.040	9.868	9.846	7.804	9.512	9.920	86,228	864	24.0	43
44	8.493	10.155	9.785	7.848	9.474	10.486	85,324	904	23.2	44
45	8.828	12.129	11.136	8.419	10.707	10.486	84,358	966	22.4	45
46	11.861	13.143	14.587	9.169	12.739	12.311	83,319	1,039	21.7	46
47	11.830	14.376	17.095	7.560	13.741	13.316	82,210	1,109	21.0	47
48	14.290	16.245	17.734	16.068	14.290	15.319	81,035	1,175	20.2	48
49	13.611	16.700	18.479	16.470	15.319	16.282	79,794	1,241	19.5	49
50	.....	16.657	18.888	17.221	16.650	17.231	78,495	1,299	18.8	50
51	.....	18.247	18.779	18.470	17.236	18.391	77,142	1,353	18.1	51
52	.....	18.070	18.598	18.065	18.470	19.777	75,723	1,419	17.4	52
53	.....	23.068	22.989	22.989	23.057	21.273	72,646	1,498	16.7	53
54	.....	22.373	22.935	24.348	24.859	22.986	70,976	1,579	16.1	54
55	.....	22.860	22.574	20.882	22.360	24.859	.....	1,670	15.4	55
56	.....	.....	.....	.....	.....	.....	.....	1,764	14.7	56

Column 2, in comparison with column 3, indicates a considerable degree of care in admitting new members. Columns 4 and 5 show that the mortality of the men was higher than the mortality of the women, with the only exception of the age period 23 to 33. If it were not for the numerous deaths from childbirth (30), from cancers of the generative organs (35) and from other diseases caused by the generative function (about 40), the death rate of the women in this association would have been lower throughout than that of the men.

Column 7 represents the graduated mortality of the Workmen's Sick and Death Benefit Fund, evolved from column 6. The lack of sufficient material at the lower and the higher ages suggested the attempt to find a standard table that showed a close relation to the actual mortality of the Workmen's Sick and Death Benefit Fund. The American Experience Table and then the O^m Table were tried without satisfactory results. The H^m Table, if we multiply it by 1.3190643 and subsequently deduct .00475755, serves the purpose very well, as the following table shows:

TABLE B.

Ages.	Actual Deaths of the Workmen's Sick and Death Benefit Fund.	Expected Deaths. (Modified H ^m Table.)
20-29	307	290.9
30-39	1,160	1,176.1
40-49	1,613	1,617.0
50-60	621	617.0
Total	3,701	3,701.0

The membership of the Workmen's Sick and Death Benefit Fund consists of a homogeneous class of people: all members belong to the workmen's class, the great majority live in the northern part of the United States, their economic status is very similar, and the age of entry is between narrow limits—17 and 45. Indeed, the mortality table derived from the records of the Workmen's Sick and Death Benefit Fund can be considered to represent the typical mortality of the insured workman in the United States during the period from 1889 to 1909. Therefore, it is interesting to compare it with the

mortality of a class of people that occupy a somewhat different economic status, such as the Standard Industrial mortality, the New Fraternal Congress, and the Royal Arcanum Mortality.

TABLE C.

Age.	Workmen's Sick and Death Benefit Fund Table.	Standard Industrial Table.	New Fraternal Congress Table.	Royal Arcanum Table.
20	3.59	6.91	5.00	4.74
25	3.99	9.52	5.20	4.94
30	5.43	11.60	5.56	5.31
35	6.82	12.99	6.15	5.95
40	8.84	14.65	7.17	7.01
45	11.32	17.35	8.87	8.82
50	16.28	21.64	11.44	11.85
55	22.99	28.46	15.71	16.96
60	34.39	39.22	22.75	25.54
65	52.53	56.13	34.39	39.85
70	77.28	82.47	53.65	63.34
75	124.99	112.97	85.48	95.43
80	186.05	183.80	138.09	140.43

The members of the Industrial companies are, as a whole, on the lowest economic level of the classes of people whose mortality Table C represents. Their premiums are small and collected weekly. In the Workmen's Sick and Death Benefit Fund the members are of a higher grade. Their assessments for both death and sick benefits are paid monthly. The Fraternal Societies are of a still higher economic status. Their amount of insurance is rarely below \$1,000, and rises to a maximum of \$5,000.

A glance at Table C shows at once that the Industrial table gives the highest mortality; the Workmen's Sick and Death Benefit Fund Table is somewhat lower, and the mortality of the New Fraternal Congress Table and of the Royal Arcanum is much lower still. The New Fraternal Congress Table and the Royal Arcanum Table are very similar.

If we call the mortality of the Workmen's Sick and Death Benefit Fund 100, then the mortality of the Standard Industrial and of the New Fraternal Congress Tables is as follows:

TABLE D.

Attained Ages.	Workmen's Sick and Death Benefit Fund.	Standard Industrial.	New Fraternal Congress.
20	100	192	139
25	100	238	130
30	100	214	102
35	100	190	90
40	100	166	81
45	100	153	78
50	100	133	70
55	100	124	68
60	100	114	66
65	100	107	65
70	100	107	69
75	100	90	68
80	100	99	74

The low mortality of the Workmen's Sick and Death Benefit Fund at the youngest ages is due principally to the influence of selection. Up to age 22 inclusive all risks of this association are not more than five years old; in other words, they all passed a satisfactory medical examination within five years. From ages 23 to 30 there were 244 deaths, 176 of which occurred during the first five years of insurance; that is, probably over three fourths of the risks were from 1 to 5 years old. Although the Standard Industrial and the New Fraternal Congress Tables also are aggregate tables, they are, between ages 20 and 30, much less influenced by medical selection.

Aside from the irregularity at the young ages, the mortality of the Workmen's Sick and Death Benefit Fund is about 50 per cent. higher than the mortality of the fraternal orders. On the other hand, the Industrial Table shows a mortality twice as high as that of the Workmen's Sick and Death Benefit Fund at the young ages, 50 per cent. higher at the middle period of life, and a gradually decreasing excess later on until the excess disappears entirely at very old ages.

What explanation can be given of the different death rates of the above tables? Man is largely a product of his environment which influences and shapes his life from the cradle to the grave; it determines the nature of the life he lives and therefore determines also, to a large extent, the length of his individual life. Inasmuch as environment is largely influenced by the economic condition of the individual, the economic

condition is one of the potent factors lengthening or shortening human life.

Poverty shortens life; for poverty means a poor quality and often insufficient food, poor air in crowded habitations, overwork, lack of leisure and recreation, and little or no attention in case of illness.

A comfortable economic condition means ample food of good quality, a healthful rotation of work and recreation, comfortable home surroundings, and needed attention in illness.

Yet, by no means does the average length of life increase with a change from comfortable surroundings to affluence and wealth; for wealth often leads to over-indulgence in the pleasures of life, and to a life lacking healthful mental and physical exertion. Wealth at times also leads to another extreme: overwork in assuming great responsibilities.

Many years ago, in his book, "Influence of Selection," Actuary McClintock referred to the higher mortality of persons insured for large amounts. Since then insurance companies have produced considerable evidence pointing in the same direction.

The saying, "A short life but a merry one," seems to apply more or less to those possessed of large means; on the other hand, poverty tends not only to a short life but also to one deprived of pleasure. The longest life seems to be the lot of the one who combines abundant physical and mental work and obtains a financial return for his exertions sufficient to insure to him the comforts of life. To what extent the duration of life is influenced by surroundings is well illustrated by the Workmen's Sick and Death Benefit Fund and the New Fraternal Tables. The complete expectation of years of life under these tables compares as follows:

Attained Ages.	Workmen's Sick and Death Benefit Fund.	New Fraternal Congress.
20	42.6	45.6
25	38.4	41.8
30	34.2	37.8
35	30.2	33.9
40	26.3	29.9
45	22.4	26.0
50	18.8	22.2
55	15.4	18.5
60	12.3	15.0
65	9.6	11.8
70	7.2	9.0
75	5.3	6.6
80	3.8	4.6

We note that there are three years of life lost on the average by each member of the Workmen's Sick and Death Benefit Fund as compared with the members of the Fraternal Societies, owing to the difference in the economic status.

A study of the death causes also reveals the bearing which the economic condition has upon length of human life. Let us consider deaths from tuberculosis. Tuberculosis, one of the curses of the human race, especially of the poorer stratum of society, is usually a reliable indication of a high or low mortality from all causes.

For the period from 1896 to 1900 the Prudential Life Insurance Company reported 23 per cent. of the deaths in the industrial branch as due to tuberculosis.* Of the 3745 deaths of the Workmen's Sick and Death Benefit Fund 21.2 per cent. were caused by tuberculosis; for the New Fraternal Congress, Dr. Porter, a few years ago, reported the death rate from tuberculosis as 14.8; while such a comparison of deaths from tuberculosis cannot be very precise because the basis of computation is not identical and because age groups are not compared with corresponding age groups, yet the decrease of the tuberculosis death rate is so pronounced as we go from the lower to the higher economic levels, that it cannot fail to be impressive.

Another significant feature is the suicide death rate. 260 men of the Workmen's Sick and Death Benefit Fund, or 8 per cent. of all the men who died, committed suicide. Includ-

* For this comparison the Prudential tuberculosis death rate—23—is low, owing to the large proportion of children policyholders.

ing also the suicides among women, 12 in all, brings the percentage down to 7.26. This suicide death rate is over twice as great as the suicide death rate experienced by the regular line life companies. Looking for a cause we note the well known fact that an average workman is poorly remunerated at his prime of life and after he reaches the age of 40 he may find it very difficult to obtain employment at all. Thus, in spite of many years of great productiveness, of great usefulness, he is often driven to despair and suicide, especially so when he reaches the stage of life at which he is considered old and less useful than his younger and stronger brother.

It is a pity that our civilization has not yet advanced to the stage when a useful, productive life receives, as a matter of course, abundant reward not only during the years of greatest productiveness, but also during the later years. Such a reward could easily be the lot of all, in view of the great facility with which a superabundance of all material necessities of life could be produced, if only the enormous productive forces of the present time were intelligently, concertedly, co-operatively applied for the benefit of all.

Let us hope that the wasteful, crushing, competitive warfare in industrial life will in the near future be looked upon as a relic of barbarism.